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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,572	11/17/2003	Ann C. Irvine	030064U1	4718

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QUALCOMM INCORPORATED
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EXAMINER	
LAUTURE, JOSEPH J	

ART UNIT	PAPER NUMBER
2819	

NOTIFICATION DATE	DELIVERY MODE
09/24/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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TH

Office Action Summary	Application No.	Applicant(s)	
	10/715,572	IRVINE ET AL.	
	Examiner	Art Unit	
	Joseph Lauture	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 25, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ribas-Corbera et al (US 2002/0122598) in view of Itawaki et al (US 2002/0085584).

Regarding claim 25, Ribas-Corbera et al teach in figures (4) and (5) an encoding method for generating compressed data based on quantized transform coefficients of the data, the method comprising: accessing an inventory of blocks/layers (See step 34) ordered from smallest energy to largest energy (energy distribution) of the quantized transform coefficients; and, extracting with the use of an encoder a selected number of layers/blocks (the non-discarded blocks) to generate the compressed data.

Ribas-Corbera et al do not specifically teach a method for generating compressed data wherein data is extracted based on a bit rate requirement. However, Itawaki et al teach in figure (4) a multiplex system for video encoding, wherein a multiplexing apparatus (6) extracts data based on a bit rate requirement (See figures (9), (10); See paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ribas-Corbera et

al and of Itawaki et al to realize a system having improved performance and reliability because that would make it possible to transmit more programs (See paragraph [0006]).

Regarding claim 27, Ribas-Corbera et al teach in figures (4) and (5) an encoding apparatus for generating compressed data based on quantized transform coefficients of the data, the apparatus comprising: means for accessing an inventory of blocks/layers (See step 34) ordered from smallest energy to largest energy (energy distribution) of the quantized transform coefficients; and, an encoder used to extract a selected number of layers/blocks (the non-discarded blocks) to generate the compressed data.

Ribas-Corbera et al do not specifically teach a method for generating compressed data wherein data is extracted based on a bit rate requirement. However, Itawaki et al teach in figure (4) a multiplex system for video encoding, wherein a multiplexing apparatus (6) extracts data based on a bit rate requirement (See figures (9), (10); See paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ribas-Corbera et al and of Itawaki et al to realize a system having improved performance and reliability because that would make it possible to transmit more programs (See paragraph [0006]).

Regarding claim 29, Ribas-Corbera et al teach in figure (10) an encoding apparatus for generating compressed data based on quantized transform coefficients of the data, the apparatus comprising: an inherent storage medium to hold digital video frames (11), the frames comprising multiple blocks/layers based on energy distribution of the quantized coefficients (See figures 4 and 5); a selection module (70) coupled to

the storage medium and configured to extract a number of layers/blocks from the inventory and pass them on to an encoder (78) that generate the compressed data.

Ribas-Corbera et al do not specifically teach a method for generating compressed data wherein data is extracted based on a bit rate requirement. However, Itawaki et al teach in figure (4) a multiplex system for video encoding, wherein a multiplexing apparatus (6) extracts data based on a bit rate requirement (See figures (9), (10); See paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ribas-Corbera et al and of Itawaki et al to realize a system having improved performance and reliability because that would make it possible to transmit more programs (See paragraph [0006]).

Claims 1, 12, 22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US 6,480,547) in view of Ribas-Corbera et al (US 2002/0122598).

Regarding claim 1, Chen et al teach in figure (4) a data compression method comprising: generating transform coefficients from input data using a Discrete Cosine Transform (414); quantizing the transform coefficients using a quantizer (416); grouping the transform coefficients into layers (See abstract; See column 9, lines 44-48); See figure (4)); and, entropy coding layers of the data coefficients using an entropy coder (418).

Chen et al do not teach generating an energy distribution of the quantized transform coefficients and grouping the transform coefficients into layers based on the energy distribution. Ribas-Corbera et al teach in figure (4) a digital video encoding

method that includes: generating an energy distribution of quantized transform coefficients at step (32); and, at step (34), grouping the transform coefficients based on their energy distribution. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen et al and of Ribas-Corbera et al to achieve a compression method having improved reliability and performance because that would help to prevent buffer overflow (See paragraph [0015]).

Regarding claim 12, Chen et al teach in figure (4) a data compression apparatus and method comprising: generating transform coefficients from input data using a Discrete Cosine Transform (414); quantizing the transform coefficients using a quantizer (416); grouping the transform coefficients into layers (See abstract; See column 9, lines 44-48); See figure (4)); and, entropy coding layers of the data coefficients using an entropy coder (418).

Chen et al do not teach generating an energy distribution of the quantized transform coefficients and grouping the transform coefficients into layers based on the energy distribution. Ribas-Corbera et al teach in figure (4) a digital video encoding method that includes: generating an energy distribution of quantized transform coefficients at step (32); and, at step (34), grouping the transform coefficients based on their energy distribution. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen et al and of Ribas-Corbera et al to achieve a compression method having improved reliability and

performance because that would help to prevent buffer overflow (See paragraph [0015]).

Regarding claim 22, Chen et al teach in figure (4) a data compression apparatus and method comprising: generating transform coefficients from input data using a Discrete Cosine Transform (414); quantizing the transform coefficients using a quantizer (416); grouping the transform coefficients into layers (See abstract; See column 9, lines 44-48); See figure (4)); and, entropy coding layers of the data coefficients using an entropy coder (418).

Chen et al do not teach generating an energy distribution of the quantized transform coefficients and grouping the transform coefficients into layers based on the energy distribution. Ribas-Corbera et al teach in figure (4) a digital video encoding method that includes: generating an energy distribution of quantized transform coefficients at step (32); and, at step (34), grouping the transform coefficients based on their energy distribution. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen et al and of Ribas-Corbera et al to achieve a compression method having improved reliability and performance because that would help to prevent buffer overflow (See paragraph [0015]).

Regarding claim 31, Chen et al teach in figures (4), a data compression method implemented in a computer program (See figures (6), (7)) stored on a computer readable medium, the method comprising: generating transform coefficients from input

data using a Discrete Cosine Transform (414); quantizing the transform coefficients using a quantizer (416); grouping the transform coefficients into layers (See abstract; See column 9, lines 44-48); See figure (4)); and, entropy coding layers of the data coefficients using an entropy coder (418).

Chen et al do not teach generating an energy distribution of the quantized transform coefficients and grouping the transform coefficients into layers based on the energy distribution. Ribas-Corbera et al teach in figure (4) a digital video encoding method that includes: generating an energy distribution of quantized transform coefficients at step (32); and, at step (34), grouping the transform coefficients based on their energy distribution. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen et al and of Ribas-Corbera et al to achieve a compression method having improved reliability and performance because that would help to prevent buffer overflow (See paragraph [0015]).

Regarding claims 2-11, 13-21, 23, 24 and 32-41, the combination of Chen et al and Ribas-Corbera et al teach as shown in figures in figures (1) and (4) of Ribas-Corbera: a video encoding method that includes: grouping blocks of transform coefficients made of various numbers of bits including nibbles and crumbs into layers in an order of significance, i.e. according to their energy distribution (See step 34 of figure (4)), wherein the quantized transform coefficients are arranged prior to generating the energy distribution (See step 34 of figure (4)), wherein the transform coefficients are generated using a DCT/absolute DCT unit (414); and entropy encoding various

subsequent layers to generate further compressed data that is stored in an inventory, wherein the layers are sequentially extracted for compression. Ribas-Corbera et al do not specifically teach the use of memory circuits. However, the use of memory elements in a data compression system to hold data for further processing is well known.

Regarding claims 26, 28 and 30, the combination of Ribas-Corbera et al and Itawaki teach as shown in figures (4) and (5) of Ribas-Corbera: an encoding apparatus and method for generating compressed data based on quantized transform coefficients of the data, the method comprising: accessing an inventory of blocks/layers (See step 34) ordered from smallest energy to largest energy (energy distribution) of the quantized transform coefficients; generating an energy distribution of quantized transform coefficients at step (32); and, at step (34), grouping and storing in an inventory for subsequent access the transform coefficients based on their energy distribution.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Lauture, whose telephone number is (571) 272-1805. The examiner can normally be reached Monday to Friday between 9:30 am and 6:00 PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached at (571) 272-7492. The fax number for the organization to which this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see ***http://pair-direct.uspto.gov.*** Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free). For assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph Lauture
Art Unit: 2819
Date: 09/05/2007